

# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : NIPPON KIYARIA KOGYO:KK

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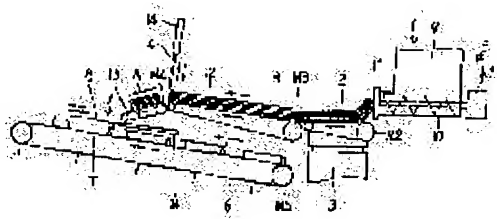
(72)Inventor : NAKANO HITOSHI

## (54) WEIGHING CUTTER OF KNEADED DOUGH

### (57)Abstract:

**PURPOSE:** To provide a cutter capable of precisely cutting kneaded dough for each prescribed weight and useful for tray packaging, etc., of food dough by weighing kneaded dough extruded from an extruding apparatus by a weighing conveyer and cutting the dough weighed to a prescribed weight with a cutter.

**CONSTITUTION:** Kneaded dough A for kneaded meat foods, etc., is extruded from an extruder 1 and weighed by a weighing device 3 while feeding the dough into a weighing conveyer and conveying the dough. When the dough is weighed so as to become a prescribed weight by feedback control of extruding amount due to weighing output value, a cutter 4 is operated to provide the cut dough having nearly prescribed dough weight.



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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] Side elevation.

[Drawing 2] Control-block Fig.

[Drawing 3] It is the side elevation showing an exception example a part.

[Drawing 4] The control-block Fig.

[Drawing 5] It is the side elevation showing an exception example a part.

[Drawing 6] The control-block Fig.

[Description of Notations]

1 Equipment for Launching

2 Measuring Conveyor

3 Measuring Instrument

4 Cutter

5 Extrusion Control Unit

6 Tray Conveyor

7 Receipt Equipment

8 Drawing-Out Plate

A Ikuji made from \*\*

T Tray

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the measuring cutter of Ikuji made from \*\* who does cutting separation of Ikuji made from \*\* for every fixed weight. the product made from \*\* -- as the ground -- food -- it can use effective in a tray package of the ground especially the food made from \*\*\*\*, minced meat meat, etc.

[0002]

[Description of the Prior Art] Although there is a technique cut in a quantum by carrying out quantum division of Ikuji made from \*\* who extrudes with the equipment for launching by the spiral by the cutter interlocked with rotation of this spiral and fixed relation, and a sensor's detecting Ikuji made from \*\* extruded from this equipment for launching, and rotating a cutter Since the extrusion consistency of Ikuji made from \*\* by equipment for launching is not fixed with such a technique, Even if the sensor which detects the extrusion location of Ikuji made from \*\*\*\* even if the rotation linkage with an extrusion spiral and a cutter is maintained uniformly works correctly, there is much change of Ikuji's consistency by the cutter cut, and weight is not fixed. food -- the food made from \*\* applied to each tray package even if it is the ground which carried out cutting separation by the cutter, when dealt with with weight like the tray package article of the ground -- weight must be measured for every ground, a price must be decided, and trouble is required.

[0003]

[Means for Solving the Problem] this invention -- the product made from \*\* -- the ground -- the equipment for launching 1 which extrudes A, and this ground extruded -- the measuring instrument 3 which carries out a batching by weight while conveying in response to A on the measuring conveyor 2, and the ground sent out from this measuring conveyor 2 -- the product made from \*\* which comes to have the cutter 4 which cuts A based on measuring of the fixed weight of this measuring instrument 3 -- it considers as the configuration of the measuring cutter of the ground.

[0004]

[Function and Effect(s) of the Invention] Ikuji A made from \*\* extruded by equipment for launching 1 can receive on the measuring conveyor 2, and has weight measured with a measuring instrument 3. It cuts a cutter 4 operating and fixing Ikuji weight, if Shigekazu Ikuji on this measuring conveyor 2 is uniformly measured by the measuring instrument 3.

[0005] Thus, Ikuji A made from \*\* extruded by equipment for launching 1 Weight is measured with a measuring instrument 3, carrying out extrusion migration of the measuring conveyor 2 top. a cutter 4 is operated with this measuring -- making -- extrusion -- the ground, since A is cut in fixed weight each cutting -- the ground -- while the precision of the formation of weight fixed of A can be raised and extrusion migration of the measuring conveyor 2 top is carried out -- the ground -- in order to perform cutting of the batching by weight of A, and fixed weight -- the ground of high efficiency -- continuous measuring cutting processing by extrusion migration of A can be performed.

[0006] the extrusion outlet according [ with the configuration which forms the extrusion control unit 5 in equipment for launching 1 like invention of said claim 2, when the measuring weight by the measuring instrument 3 is larger than fixed setting weight, decrease the extrusion outlet by equipment for launching 1, and ] to equipment for launching 1 when conversely small -- increasing -- the extrusion of the measuring conveyor 2 -- the ground -- degree control of extrusion is performed so that the measuring weight by the measuring instrument 3 of A may become fixed.

[0007] the extrusion according to equipment for launching 1 by such configuration -- the ground -- the ground by the extrusion control unit 5 even if the extrusion outlet consistency of A changes -- degree control of A extrusion outlet carries out -- having -- extrusion -- the ground -- the consistency of A, and the ground -- extrusion measuring of A and cutting weight can be maintained to about 1 law, and measuring cutting processing of the stable fixed weight can be

performed.

[0008] Carrying out weight measurement of Ikuji A led on the measuring conveyor 2 like invention of said claim 3 with a measuring instrument 3, when Ikuji A on this measuring conveyor 2 reaches a fixed weight the ground by which a batching by weight is carried out on the measuring conveyor 2 when considering as the configuration which carries out cutting separation by the cutter 4 -- A -- the extrusion of direct consecutiveness -- since cutting separation is carried out by the cutter 4 from Ground A, it is hard to produce an error in a batching by weight, and more exact fixed weight can be cut.

[0009]

[Example] drawing 1 and drawing 2 -- setting -- the product made from \*\* -- the ground -- the equipment for launching 1 which extrudes A, and this ground extruded -- the measuring instrument 3 which carries out a batching by weight while conveying in response to A on the measuring conveyor 2, and the ground sent out from this measuring conveyor 2 -- it has the cutter 4 which cuts A based on measuring of the fixed weight of this measuring instrument 3. Moreover, the extrusion outlet of Ikuji A made from \*\* in equipment for launching 1 is adjusted with measuring by this measuring instrument 3, and the extrusion control unit 5 controlled to maintain uniformly the cutting weight of Ikuji A by the cutter 4 is formed.

[0010] You form the extrusion spiral 10 in the pars basilaris ossis occipitalis of a hopper 9 which holds food Ikuji A made from \*\*, and therefore a motor M1 makes it rotate electric, said equipment for launching 1 is carried out like a thin-wheat-noodles bundle from extrusion nozzle [ many ] 11 of the front end section group, and it can be extruded, carrying out continuous molding.

[0011] The measuring instrument 3 which has the measuring conveyor 2 is formed so that it can convey to a before side in response to Ikuji A made from \*\* extruded from said extrusion nozzle 11, it consists of load cells, and drives the measuring conveyor 2 by the motor M2 in this top side. Weight is measured with this measuring instrument 3 with measuring conveyor 2 grade, conveying in response to Ikuji A made from \*\* on the top face of this weighbelt 2. The fixed-speed conveyor 12 driven by the motor M3 is formed in the lower part side of said measuring conveyor 2, and Ikuji A conveyed by measuring conveyor 2 is inherited and conveyed on the flat-belt top face as it is.

[0012] The gear change conveyor 13 is formed in a before [ this fixed-speed conveyor 12 ] side, and it carries out electric by the motor M4. Between these fixed-speed conveyor 12 and the gear change conveyor 13, the cutter 4 which moves up and down by telescopic motion of an air cylinder 14 can be formed, and lower \*\* of a cutter 4 can cut Ikuji A inherited from the fixed-speed conveyor 12 on the gear change conveyor 13 in the front end section location of this fixed-speed conveyor 12. moreover, the rate immediately after the cutting operation by the cutter 4 accelerates this gear change conveyor 13 with a criteria rate automatically -- having -- the ground on the gear change conveyor 13 after cutting -- A -- prompt -- eliminating -- sending of consecutiveness -- measuring of the ground is made to be performed correctly. Automatic deceleration of after rapid-traverse exclusion of the ground is carried out so that it may return to the rate of criteria.

[0013] the tray conveyor 6 was cut -- each -- the ground -- one, it carries for arranging, delivery conveyance is carried out, and, therefore, a motor M5 drives the tray T held every [ A ] electric. It was prepared so that Ikuji's A fall location sent out by said gear change conveyor 13 might be approached and Tray T might be conveyed, and the drawing-out plate 8 and air cylinder 24 which constitute receipt equipment 7 are prepared between the termination of these gear change conveyor 13, and the tray conveyor 6. The drawing-out plate 8 is in the condition which consisted of a plate and approached the Kamiguchi side of each tray T on the tray conveyor 6 in the shape of parallel, it is formed free [ reciprocation ] so that it may be parallel to the conveyance direction of the tray T of a parenthesis, and it operates by telescopic motion of an air cylinder 24. the cut ground -- since this drawing-out plate 8 will be quickly pulled back back by the air cylinder 24 if A is put on the front from the gear change conveyor 13 on the top face of this drawing-out plate 8 under migration, it is completely put on the top face of the drawing-out plate 8 and the empty tray T is located in directly under -- the ground of this drawing-out plate 8 top face -- A falls a location as it is and is held in a tray [ directly under ] T according to location inertia.

[0014] In such a configuration, on the motor M1 of said extrusion spiral 10, it has an inverter 15, and has an inverter 16 in the motor M4 grade of the motor M2 of the measuring conveyor 2, the motor M3 of the fixed-speed conveyor 12, and the gear change conveyor 13. The measuring output value by said load cell measuring instrument 3 and the desired value by the frequency setter 18 are compared by the PI control machine 17, and feedback control is carried out to an inverter 15.

[0015] It is what is controlled by this to keep constant the extrusion outlet of Ikuji A by equipment for launching 1. If the extrusion outlet by equipment for launching 1 increases now, the weight which is the ground A up [ measuring conveyor 2 ] will also increase, and by for example, the increase of measuring by the measuring instrument 3 With

increase, consequently the PI control vessel 17, the amount of electric generating power by the electrical signal conversion by the load cell Since the deflection of desired value with the frequency setting machine 18 set up beforehand and the detection value by the measuring instrument 3 increases, It will output so that the controlled variable to an inverter 15 may be decreased, and the frequency of an inverter 15 is decreased, the rotational frequency of a motor M1 is reduced, the extrusion outlet of Ikuji A by the extrusion spiral 10 is decreased, and maintenance control is carried out at the extrusion outlet of fixed weight. Moreover, if the extrusion outlet of Ikuji A by equipment for launching 1 decreases too much and Shigekazu Ikuji on the measuring conveyor 2 decreases in number, it becomes an operation contrary to the above, and the engine speed of a motor M1 will be increased, an extrusion outlet will be made [ many ], and it will control to maintain the amount of extrusion conveyances on the measuring conveyor 2 in fixed weight.

[0016] An accommodation setup of said each conveyors 2, 12, and 13 is carried out with the frequency setting vessel 19 so that it may become this suitable peripheral velocity with drive motors M2, M3, and M4. A rotary encoder 20 sends the pulse according to the rotational speed of the measuring conveyor 2 to the flow rate pulse generator 21. 22 is a weight addition counter, 23 is a shift counter, and the signal of cutting timing is outputted to a cutter 4. as mentioned above, the ground of the measuring conveyor 2 -- when A weight increases, quantity of electricity in a measuring instrument 3 also increases, and since the rotary encoder 20 supplies the pulse according to the rotational speed of the measuring conveyor 2 to the flow rate pulse generator 21 as mentioned above, if its pulse number of this flow rate pulse generator 21 increases, the time amount to the counter rise of the weight addition counter 22 will become short. Moreover, when the Ikuji A weight of the measuring conveyor 2 decreases conversely, the time amount to this counter rise becomes long similarly. A shift counter 23 outputs the signal of cutting timing to the cutter 4 of the trailer of the fixed-speed conveyor 12. This cutter 4 is cut so that weight may turn into a constant rate with the cutting timing signal of this shift counter 23.

[0017] thus, the product made from \*\* -- the ground -- the basis of the measuring signal of the fixed weight according [ when A is extruded from equipment for launching 1 and this extrusion weight has the measuring conveyor 2 top conveyed, are always measured with a measuring instrument 3, and ] to this measuring instrument 3 -- a cutter 4 -- every fixed weight -- the ground -- since A cutting is performed -- each cutting -- the ground -- the weight of A can be arranged uniformly. And since this batching by weight is performed conveying Ikuji A by measuring conveyor 2, it carries out measuring cutting processing to high efficiency.

[0018] moreover, the revolving speed control of the extrusion spiral 10 according to a motor M1 with equipment for launching 1 -- the ground from the extrusion nozzle 11 -- the extrusion outlet of A -- being changeable -- the batching by weight of a measuring instrument 3 -- this extrusion outlet -- modification control -- carrying out -- conveyance on the measuring conveyor 2 -- the ground -- cutting can carry out the maintenance control of the weight of A uniformly, therefore according to a cutter 4 -- the ground -- the weight of A is uniformly maintainable.

[0019] for this reason, cutting with the gestalt with which the long fixed-speed conveyor 12 is formed between the measuring conveyor 2 and a cutter 4, keep constant the conveyance weight ranging from this measuring conveyor 2 to the fixed-speed conveyor 12 like the example of drawing, and according to a cutter 4 -- the ground -- it can be easy to maintain the weight of A uniformly, and is effective.

[0020] the ground which a different point from an upper example has arranged the measuring conveyor 2 and the measuring instrument 3 to the backside [ a cutter 4 ] in drawing 3 and drawing 4, and was conveyed by equipment for launching 1 and fixed-speed conveyor 12 -- a cutter 4 cuts in fixed weight between this fixed-speed conveyor 12 and the measuring conveyor 2, measuring A with a measuring instrument 3, while passing along the measuring conveyor 2 top.

[0021] Therefore, since it is directly separated from the consecutive ground A while the batching by weight of Ikuji A who has measuring conveyor 2 top face conveyed is carried out, a long conveyance stroke does not enter between measuring and cutting, but there is little weight change of each cutting Ikuji A by change of the weight density of Ikuji A between this conveyance stroke. 25 is a weight setter which sets up the weight of each cutting Ikuji A who is the measuring desired value of a measuring instrument 3, and consists of frequency setting machines.

[0022] in addition, the ground which the extrusion outlet by the motor M1 of equipment for launching 1 is controlled [ ground ] by measuring of a measuring instrument 3, and has the measuring conveyor 2 top conveyed like a precedent -- \*\* which carries out extrusion control so that A weight may be maintained uniformly is good.

[0023] a different point from an upper example in drawing 5 and drawing 6 -- the measuring conveyor 2 and a measuring instrument 3 -- the tray conveyor 6 -- on the way -- the ground which boils and establishes and is conveyed by fixed-speed conveyor 12 -- the ground which measures, receiving A in the tray T on the direct measuring conveyor 2, and is received on this tray T -- a cutter 4 cuts A from the consecutive ground A. For this reason, the receipt

equipment 7 like a precedent also becomes unnecessary, and a configuration can also simplify it. In addition, each conveyors 12, 2, and 6 are good to set up peripheral velocity with an inverter 16, so that it may become this \*\*.

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CLAIMS

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[Claim(s)]

[Claim 1] the product made from \*\* -- the ground -- the equipment for launching 1 which extrudes A, and this ground extruded -- the measuring instrument 3 which carries out a batching by weight while conveying in response to A on the measuring conveyor 2, and the ground sent out from this measuring conveyor 2 -- the product made from \*\* which comes to have the cutter 4 which cuts A based on measuring of the fixed weight of this measuring instrument 3 -- the measuring cutter of the ground.

[Claim 2] the product [ in / by the batching by weight by said measuring instrument 3 / equipment for launching 1 ] made from \*\* -- the ground -- the ground adjust the extrusion outlet of A and according to a cutter 4 -- the claim which comes to prepare the extrusion control unit 5 controlled to maintain the cutting weight of A uniformly -- the product made from \*\* given in the 1st term -- the measuring cutter of the ground.

[Claim 3] The 1st term of a patent claim characterized by carrying out cutting separation of Ikuji A of the fixed weight on this measuring conveyor 2 by the cutter 4 from the ground A led on the measuring conveyor 2 based on the batching by weight by said measuring instrument 3, or the measuring cutter of Ikuji made from \*\* given in the 2nd term.

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(71) 出願人 000152815

株式会社日本キャリア工業

愛媛県松山市東垣生町980番地5

(72) 発明者 仲野 整

愛媛県松山市東垣生町980番地5 株式会

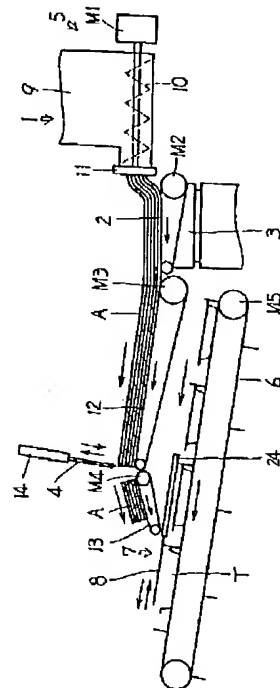
社日本キャリア工業内

(54) 【発明の名称】 練製生地の計量カッター

(57) 【要約】

【目的】 ミンチ肉の如き練製生地Aを押出装置1で押出しながらカッター4で一定重量に切断する。

【構成】 練製生地Aを押出す押出装置1と、この押出される生地Aを計量コンベア2に受けて搬送しながら重量計量する計量器3と、該計量コンベア2から送り出される生地Aを該計量器3の一定重量の計量にもとづいて切断するカッター4とを有してなる練製生地Aの計量カッターの構成。



## 【特許請求の範囲】

【請求項1】 練製生地Aを押出す押出装置1と、この押出される生地Aを計量コンベア2に受けて搬送しながら重量計量する計量器3と、該計量コンベア2から送り出される生地Aを該計量器3の一定重量の計量にもとづいて切断するカッター4とを有してなる練製生地の計量カッター。

【請求項2】 前記計量器3による重量計量によって押出装置1における練製生地Aの押出量を加減して、カッター4による生地Aの切断重量を一定に維持するように制御する押出制御装置5を設けてなる特許請求の範囲第1項記載の練製生地の計量カッター。

【請求項3】 前記計量器3による重量計量にもとづいて、計量コンベア2上に送られる生地Aから、この計量コンベア2上の一定重量の生地Aをカッター4で切断分離することを特徴とする特許請求の範囲第1項、又は第2項記載の練製生地の計量カッター。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】この発明は、練製生地を一定重量毎に切断分離する練製生地の計量カッターに関する。練製生地としては、食品生地、特に肉練製食品、ミンチ肉等のトレイ包装等に有効に利用できる。

## 【0002】

【従来の技術、及び発明が解決しようとする課題】螺旋による押出装置によって押出す練製生地を、この螺旋の回転と一定の係に連動するカッターによって定量分割したり、又、この押出装置から押出される練製生地をセンサーで検出してカッターを回転することにより定量に切断する技術があるが、このような技術では、押出装置による練製生地の押出密度が一定しないため、押出螺旋とカッターとの回転連動が一定に維持されていても、又練製生地の押出位置を検出するセンサーが正確に働いても、カッターによる切断される生地の密度の変化は多く、重量は一定しない。食品生地のトレイ包装品のように重量によって取扱われる場合は、カッターで切断分離した生地であっても、各トレイ包装に係る練製食品生地毎に重量を計量して、価額を決めなければならない手数を要する。

## 【0003】

【課題を解決するための手段】この発明は、練製生地Aを押出す押出装置1と、この押出される生地Aを計量コンベア2に受けて搬送しながら重量計量する計量器3と、該計量コンベア2から送り出される生地Aを該計量器3の一定重量の計量にもとづいて切断するカッター4とを有してなる練製生地の計量カッターの構成とする。

## 【0004】

【作用、及び発明の効果】押出装置1によって押出される練製生地Aは、計量コンベア2上に受けられて計量器3で重量を計量される。この計量コンベア2上の生地重

量が計量器3により一定に計量されるとカッター4が作動されて、生地重量を一定にしながら切断する。

【0005】このように押出装置1によって押出される練製生地Aは、計量コンベア2上を押出移送されながら計量器3によって重量を計量され、この計量によってカッター4を作動させて押出生地Aを一定重量に切断するものであるから、各切断生地Aの重量一定化の精度を高めることができ、計量コンベア2上を押出移送しながら生地Aの重量計量と一定重量の切断とを行うため、高効率の生地Aの押出移送による連続的な計量切断処理を行うことができる。

【0006】前記請求項2の発明のように押出装置1に押出制御装置5を設ける構成では、計量器3による計量重量が、一定の設定重量よりも大きいときは押出装置1による押出量を減少し、又、逆に小さいときは押出装置1による押出量を増加して、計量コンベア2の押出生地Aの計量器3による計量重量が一定となるように押出の加減制御が行われる。

【0007】このような構成では、押出装置1による押出生地Aの押出量密度が変化しても、押出制御装置5による生地A押出量の加減制御が行われて、押出生地Aの密度、生地Aの押出計量、及び切断重量をほぼ一定に維持し、安定した一定重量の計量切断処理を行うことができる。

【0008】前記請求項3の発明のように計量コンベア2上に送られる生地Aを計量器3で重量計測しながら、この計量コンベア2上の生地Aが一定重量に達することにより、カッター4で切断分離する構成とする場合は、計量コンベア2上で重量計量される生地Aが直接後続の押出生地Aからカッター4で切断分離されるために重量計量に誤差を生じ難く、より正確な一定重量の切断を行うことができる。

## 【0009】

【実施例】図1、図2において、練製生地Aを押出す押出装置1と、この押出される生地Aを計量コンベア2に受けて搬送しながら重量計量する計量器3と、該計量コンベア2から送り出される生地Aを該計量器3の一定重量の計量にもとづいて切断するカッター4とを有する。又、該計量器3による計量によって押出装置1における練製生地Aの押出量を加減して、カッター4による生地Aの切断重量を一定に維持するように制御する押出制御装置5を設ける。

【0010】前記押出装置1は、練製食品生地Aを収容するホッパー9の底部に押出螺旋10を設けて、モータM1の電動によって回転させて、前端部の多数の押出ノズル11群から素麺束のようにして連続成形しながら押し出すことができる。

【0011】計量コンベア2を有する計量器3は、前記押出ノズル11から押出される練製生地Aを受けて前側へ搬送しうるように設けられてロードセルから構成さ

れ、計量コンベア2はこの上側面においてモータM2により駆動される。この計量ベルト2の上面に練製生地Aを受けて搬送しながら計量コンベア2等と共に該計量器3で重量を計量する。前記計量コンベア2の下手側にモータM3で駆動する定速コンベア12を設け、計量コンベア2で搬送される生地Aをそのまま平ベルト上面に受け継いで搬送する。

【0012】この定速コンベア12の前側に変速コンベア13を設け、モータM4によって電動する。これら定速コンベア12と変速コンベア13との間に、エアシリンドラ14の伸縮によって上下動されるカッター4を設け、定速コンベア12から変速コンベア13上に受け継がれた生地Aをこの定速コンベア12の前端部位置でカッター4の下動によって切断することができる。又、該変速コンベア13は、カッター4による切断作用直後の速度が自動的に基準速度により増速されて、切断後の変速コンベア13上の生地Aを速やかに排除して、後続の送込生地Aの計量が正確に行われるようにしている。生地Aの早送り排除後は基準の速度に戻るよう自動減速される。

【0013】トレイコンベア6は、切断された各生地A毎収容するトレイTを一並べに載せて繰出搬送するもので、モータM5の電動によって駆動される。前記変速コンベア13によって送り出される生地Aの落下位置に接近してトレイTを搬送するように設けられ、これら変速コンベア13の終端とトレイコンベア6との間に、受取装置7を構成する引抜板8及びエアシリンドラ24を設けている。引抜板8は平板からなりトレイコンベア6上の各トレイTの上口面に平行状に接近した状態で、かつこのトレイTの搬送方向と平行するように往復動自在に設けられ、エアシリンドラ24の伸縮によって作動される。切断された生地Aは、変速コンベア13から前方へ移動中のこの引抜板8の上面に載せられて、完全に引抜板8の上面に載せられて、直下に空のトレイTが位置するとこの引抜板8がエアシリンドラ24によって急速に後方へ引き戻されるため、この引抜板8上面の生地Aは位置慣性によってそのままの位置を落下されて、直下のトレイT内に収容される。

【0014】このような構成において、前記押出螺旋10のモータM1にはインバータ15を有し、計量コンベア2のモータM2、定速コンベア12のモータM3、及び変速コンベア13のモータM4等にはインバータ16を有する。前記ロードセル計量器3による計量出力値と周波数設定器18による目標値とがPI制御器17で比較されて、インバータ15へフィードバック制御される。

【0015】これによって、押出装置1による生地Aの押出量を一定に保つように制御するもので、例えば、いま、押出装置1による押出量が増すと、計量コンベア2上の生地Aの重量も増して、計量器3による計量増で、

ロードセルによる電気信号変換による電気出力量も増し、この結果、PI制御器17では、予め設定されている周波数設定器18による目標値と、計量器3による検出値との偏差が増すため、インバータ15への制御量を減少させるように出力することとなり、インバータ15の周波数を減少し、モータM1の回転数を減じて、押出螺旋10による生地Aの押出量を減少して、一定重量の押出量に維持制御する。又、押出装置1による生地Aの押出量が減少し過ぎて、計量コンベア2上の生地重量が減少すると、上記とは逆の作用となり、モータM1の回転数を増して押出量を多くし、計量コンベア2上の押出搬送量を一定重量に維持するように制御する。

【0016】前記各コンベア2、12、13は駆動モータM2、M3、M4により適切な同周速度になるように、周波数設定器19で調節設定されている。ロータリエンコーダ20は、計量コンベア2の回転速度に応じたパルスを流量パルス発生器21へ発信する。22は重量積算カウンタ、23はシフトカウンタで、カッター4へ切断タイミングの信号を出力する。前記のように、計量コンベア2の生地A重量が増すときは、計量器3における電気量も増大し、ロータリエンコーダ20は前記のように計量コンベア2の回転速度に応じたパルスを流量パルス発生器21へ供給しているから、この流量パルス発生器21のパルス数が増すと、重量積算カウンタ22のカウントアップまでの時間が短くなる。又、逆に計量コンベア2の生地A重量が減少するときは、同様にしてこのカウントアップまでの時間が長くなる。シフトカウンタ23は、定速コンベア12の終端部のカッター4へ切断タイミングの信号を出力する。このカッター4は、このシフトカウンタ23の切断タイミング信号により重量が一定量となるように切断する。

【0017】このように、練製生地Aが押出装置1から押出されると、この押出重量が計量コンベア2上を搬送されることによって、計量器3で常時計量されて、この計量器3による一定重量の計量信号のもとにカッター4によって一定重量毎に生地A切断が行われるために、各切断生地Aの重量を一定に揃えることができる。しかも、この重量計量は計量コンベア2によって生地Aを搬送しながら行うものであるから、計量切断処理を高効率に行うものである。

【0018】又、押出装置1では、モータM1による押出螺旋10の回転数制御により、押出ノズル11からの生地Aの押出量を変えることができ、計量器3の重量計量によってこの押出量を変更制御して、計量コンベア2上の搬送生地Aの重量を一定に維持制御でき、従ってカッター4による切断生地Aの重量を一定に維持できる。

【0019】このため、図例のように、計量コンベア2とカッター4との間に長い定速コンベア12が設けられる形態では、この計量コンベア2から定速コンベア12に亘る搬送重量を一定に保ってカッター4による切断生

5

地Aの重量を一定に維持でき易く、有効である。

【0020】図3、図4において、上例と異なる点は、計量コンベア2及び計量器3をカッター4の後側に配置して、押出装置1及び定速コンベア12で搬送した生地Aを、計量コンベア2上を通る間に計量器3で計量しながら、この定速コンベア12と計量コンベア2との間でカッター4で一定重量に切断する。

【0021】従って、計量コンベア2上面を搬送される生地Aが重量計量されながら後続の生地Aから直接切り離されるために、計量と切断との間に長い搬送行程が入らず、この搬送行程の間における生地Aの重量密度の変化による各切断生地Aの重量変化は少い。25は計量器3の計量目標値である各切断生地Aの重量を設定する重量設定器であり、周波数設定器から構成される。

【0022】なお、前例と同様に、計量器3の計量によって押出装置1のモータM1による押出量を制御して、計量コンベア2上を搬送される生地A重量を一定に維持するように押出制御するもよい。

【0023】図5、図6において、上例と異なる点は、計量コンベア2及び計量器3を、トレイコンベア6の途中に設けて、定速コンベア12で搬送する生地Aを直接計量コンベア2上のトレイTに受けながら計量して、このトレイTで受ける生地Aを後続の生地Aからカッター

6

4で切断するものである。このため、前例の如き受取装置7も不要となり、構成も簡単化できる。なお、各コンベア12、2、6は、インバータ16によって周速度を同速になるように設定しておくともよい。

【図面の簡単な説明】

【図1】側面図。

【図2】制御ブロック図。

【図3】一部別実施例を示す側面図。

【図4】その制御ブロック図。

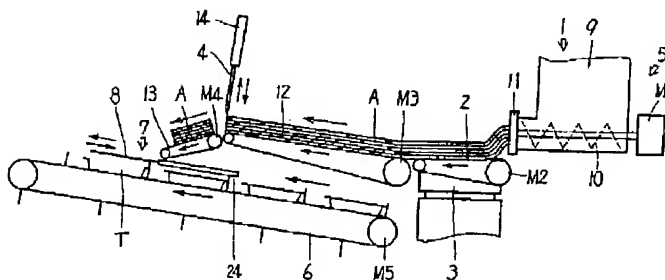
【図5】一部別実施例を示す側面図。

【図6】その制御ブロック図。

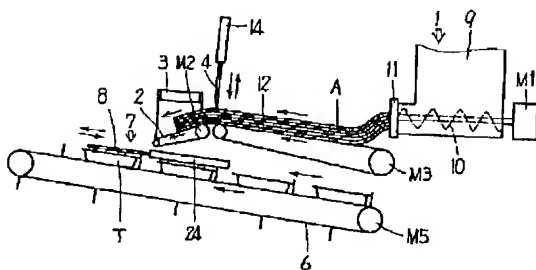
【符号の説明】

- 1 押出装置
- 2 計量コンベア
- 3 計量器
- 4 カッター
- 5 押出制御装置
- 6 トレイコンベア
- 7 受取装置
- 8 引抜板
- A 練製生地
- T トレイ

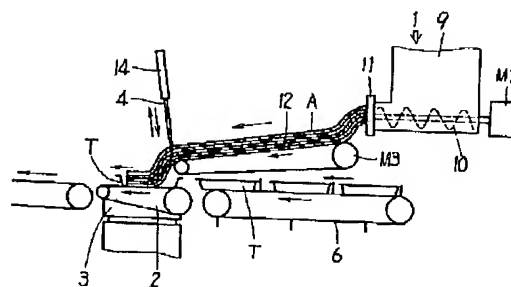
【図1】



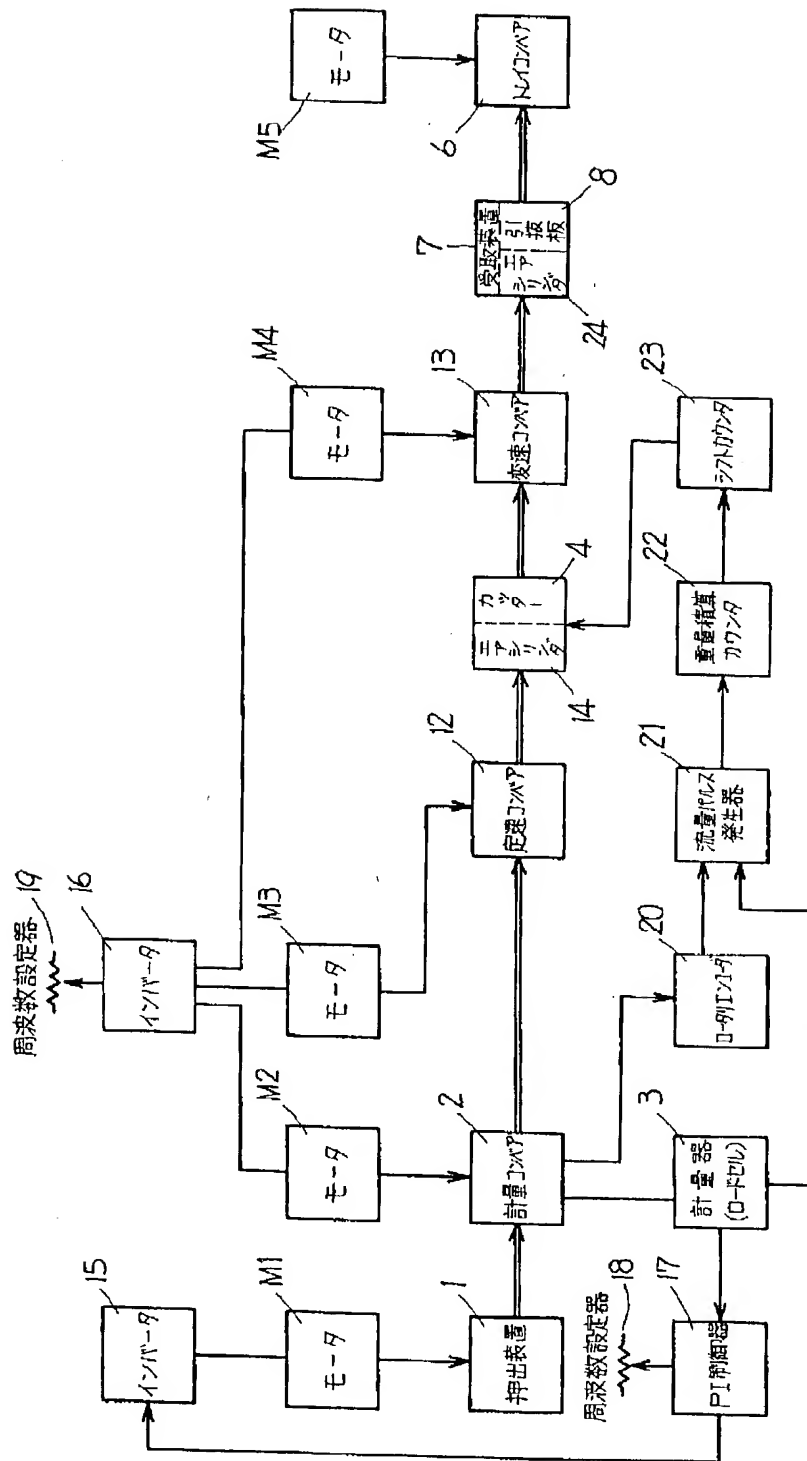
【図3】



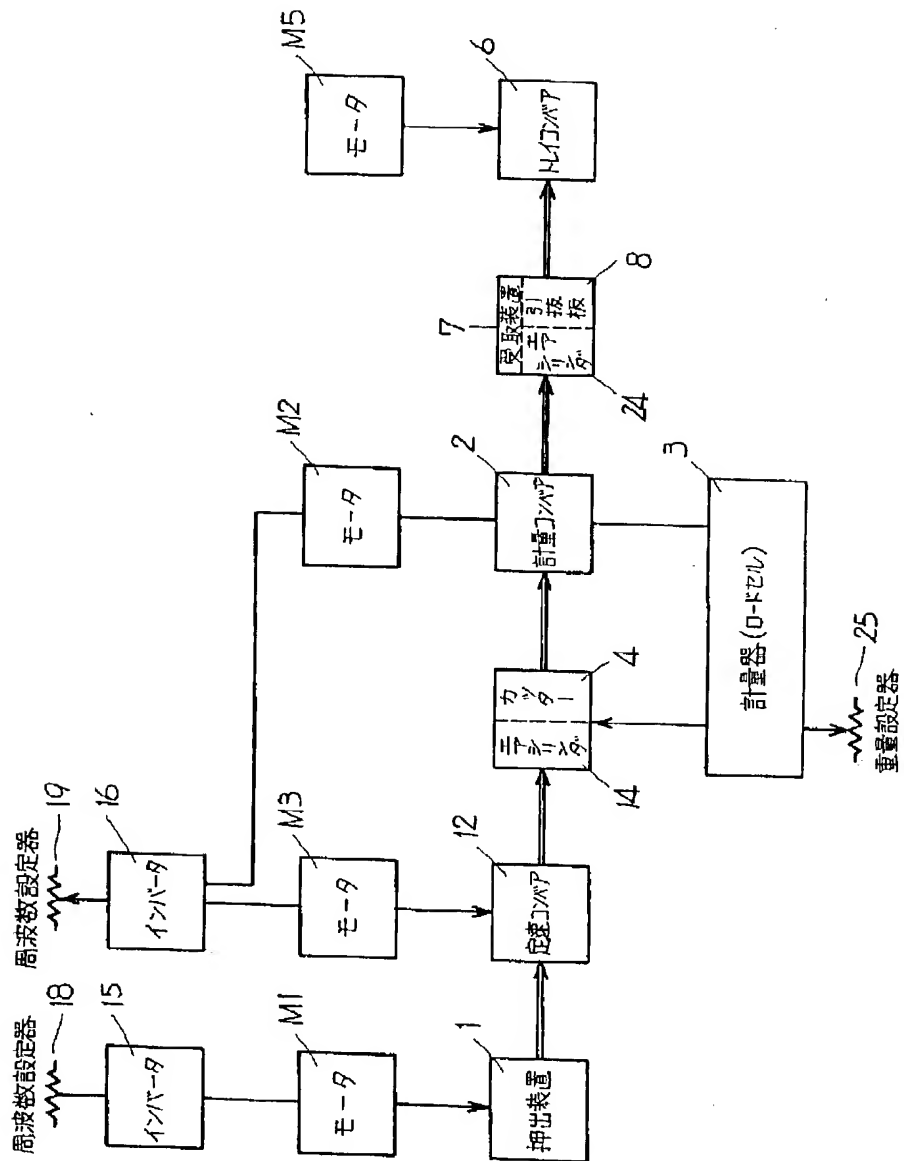
【図5】



【図2】



【図4】



【図6】

